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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Reissue Application of:

Davis et al.

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For:

Combined Lithographic/Flexographic Printing Apparatus and Process

Examiner:

Funk, Stephen

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Reply and Amendment Under 37 C.F.R. § 1.111

Dear Sir:

This is a reply to the supplemental office action mailed on April 17, 2001 due for response on July 17, 2001. Applicants hereby request a two-month extension for reply and have enclosed the appropriate fee for the requested two-month extension. In view of the following remarks and amendments, reconsideration and withdrawal of the outstanding rejections and allowance of the claims pending in this application is respectfully requested.

Please amend the application as follows:

In the specification:

(Col. 1, lines 17-24) A steel or ceramic ink metering roller. Its surface is engraved with tiny, uniform cells that carry and deposit a thin, controlled layer of ink film or coating material onto the plate. In flexographic presswork, anilox rollers transfer a controlled ink film from the

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rubber plate (or rubber-covered roller) to the web to print the image. Anilox rollers are also used in remoistenable glue units and to create "scratch-and-sniff" perfume ads.

✓ (Col. 4, lines 46-51) Whenever a station is used for flexographic printing, a flexographic plate is placed on the blanket cylinder for receiving the liquid vehicle and transferring the liquid vehicle to the substrate for printing. An anilox roller is associated with the flexographic plate for applying the liquid vehicle which may be an aqueous-based vehicle.

In the claims:

9. (Amended) Apparatus as in claim 6 further including: said flexographic printing station including a plate cylinder having a flexographic plate thereon, a blanket cylinder, and an impression cylinder;

a flexographic plate image transferred from said plate cylinder to said blanket cylinder, said image being formed of said metallic coating, said impression cylinder in ink-transfer relationship with said blanket cylinder, said blanket cylinder transferring said metallic coating to said substrate for printing said flexographic plate image on said substrate; and

an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

15. (Amended) Apparatus for a combined lithographic/flexographic printing process comprising:  
a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;  
said printing stations including both lithographic and flexographic printing stations;  
a blanket cylinder at at least a first one of said flexographic printing stations;

an impression cylinder associated with at least said first one of said flexographic printing stations;

flexographic ink-providing means at said at least first one of said flexographic printing stations

for applying a flexographic ink to said blanket cylinder to form an image;

a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and

at least one subsequent lithographic printing station in said in-line process for receiving said

image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image using offset lithography.

21. (Amended) Apparatus as in claim 17 further including halftone printing plates for printing said additional colored ink images.

44. (Twice Amended) Apparatus for a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for depositing a series of images on one side of a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a liquid vehicle image on said substrate using a flexographic process; and

at least one of said successive printing stations being a lithographic printing station;

whereby said substrate is printed on top of or on the opposite side of that previously printed at said at least one successive lithographic printing stations using the lithographic process in said continuous in-line process.

45. (Twice Amended) Apparatus as in claim 44 wherein at least one image of said series of images at the flexographic printing station is a coating material.

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(concluded)

46. (Twice Amended) Apparatus as in claim 44 wherein at least one image of said series of images at said at least one of the lithographic printing stations is an ink.

52. (Amended) Apparatus as in claim 49 further including: said flexographic printing station including a plate cylinder having a flexographic plate thereon, a blanket cylinder, and an impression cylinder;

a flexographic plate image transferred from said plate cylinder to said blanket cylinder, said image being formed of said metallic coating, said impression cylinder in ink-transfer relationship with said blanket cylinder, said blanket cylinder transferring said metallic coating to said substrate for printing said flexographic plate image on said substrate; and  
an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

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55. (Twice Amended) Apparatus for creating a combined lithographic/ flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for depositing a series of images on a substrate in a continuous in-line process;

at least one of said successive printing stations being a flexographic station and comprising:

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- E 8  
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- (1) a supply of liquid coating;
  - (2) a plate cylinder associated with a blanket cylinder, said plate cylinder having a flexographic plate thereon;
  - (3) an anilox roller associated with said liquid supply coating and said plate cylinder for delivering said liquid coating to said flexographic plate to form an image for transfer to said blanket cylinder;
  - (4) an impression cylinder for receiving said liquid coating image transferred from said blanket cylinder and printing said image on one side of said substrate; and
- at least one offset lithographic printing station for receiving said substrate and printing on top of or on the opposite side to that previously printed.

E 9

57. (Twice Amended) Apparatus as in claim 56 further including an air dryer associated with each impression cylinder on said flexographic station, said air dryer having sufficient air velocity for drying said liquid coating before the substrate is transferred to the successive printing station in said continuous in-line process.

58. (Twice Amended) Apparatus for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for depositing a series of images on a substrate in a continuous in-line process, said printing stations including, both lithographic and at least two flexographic printing stations;

a blanket cylinder at at least a first one of said flexographic printing stations;

flexographic ink-providing means for applying a flexographic ink to said blanket cylinder to form an image on one side of a substrate;

a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and  
at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image or the opposite side to that previously printed using offset lithography.

60. (Twice Amended) Apparatus for a combined lithographic/flexographic printing process for printing a multicolored image comprising:

a plurality of successive printing stations for depositing ink to form a series of images on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;

at least one of said flexographic printing stations having:

- (1) a plate cylinder and a blanket cylinder, said plate cylinder including a flexographic plate having an image thereon for transferring a flexographic color ink image to said blanket cylinder;
- (2) an etched anilox roller for applying a flexographic color ink to said flexographic plate on said plate cylinder;
- (3) an impression cylinder in ink-transfer relationship with said blanket cylinder for transferring said flexographic color ink image from said blanket cylinder to one side of said substrate; and

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at least one of said succeeding printing stations being a lithographic printing station using offset lithography for printing additional colored ink images on top of said flexographic ink image or on the opposite side to that that previously printed.

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64. (Amended) Apparatus as in claim 60 further including halftone printing plates for printing said additional colored ink images.

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66. (Amended) Apparatus as in claim 60 wherein at least one of the successive printing stations is a sheet-fed press.

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72. (Twice Amended) A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a plurality of successive lithographic and flexographic printing stations for depositing a series of images on a substrate;

printing a flexographic ink image as one of said series of images on one side of said substrate at least one of said flexographic stations;

transferring said printed substrate to at least one subsequent printing station in said continuous in-line process; and

printing an image on the reverse side of said substrate having said flexographic ink image, at at least one of said other subsequent lithographic printing stations with an offset lithographic process in the continuous in-line process.

73. (Amended) A method as in claim 72 further comprising the step of drying said flexographic ink image on said substrate with an air dryer prior to printing colored ink images thereon.

74. (Amended) A method as in claim 73 further including the step of printing a coating on top of said colored ink images at one of said plurality of subsequent printing stations.

75. (Amended) A method as in claim 73 wherein said colored ink images are formed from waterless colored inks.

76. (Amended) A method as in claim 75 wherein said waterless colored inks [forming said colored ink images] are in a solvent-based liquid vehicle.

77. (Amended) A method as in claim 72 further including the steps of:  
printing a slurry on one side of said substrate at any of said flexographic printing stations in said continuous in-line process;  
using an encapsulated essence in said slurry; and  
printing an ink on the reverse side of said substrate at a subsequent printing station in said in-line process.

78. (Twice Amended) A method as in claim 77 further including the step of printing an aqueous-based coating over said slurry.



82. (Twice Amended) A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

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- (1) providing a plurality of successive printing stations for depositing a series of images on a substrate in said in-line continuous process;
  - (2) utilizing an anilox roller to transfer a liquid ink as one of said thin controlled layers to a flexographic plate image at at least one of said printing stations;
  - (3) printing said liquid ink from said flexographic plate image to one side of said substrate;
  - (4) transferring said printed substrate with said liquid ink image to a subsequent printing station in said inline printing process;
  - (5) repeating steps (2)-(4) at subsequent printing stations in said in-line process to achieve a desired opacity ink image on the one side of said substrate; and
  - (6) printing an ink pattern on the reverse side of said substrate using an offset lithographic process.

85. (Twice Amended) A method of combining offset lithography and flexography using a plurality of successive printing stations in a continuous in-line process, at least one of said stations comprising a flexographic printing station for printing an image on a substrate using a flexographic process:

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- (1) printing an image at one or more of said printing stations on said substrate using an offset lithographic process;
  - (2) transferring said image printed substrate to an additional and flexographic printing station and printing at said flexographic and additional printing station a coating on all or part of said image on said substrate;

(3) transferring said substrate to one or more additional printing stations for printing the reverse side of the said substrate; and

(4) printing an image on said reverse side of said substrate at one of said one or more printing stations using an offset lithographic process in the continuous inline process.

86. (Twice Amended) Apparatus for a combined offset lithographic and flexographic printing process comprising:

(1) a substrate;

(2) a plurality of successive printing stations for depositing a series of images selected from a group consisting of lithographic and flexographic inks, coatings and slurries on one or both sides of a substrate in a continuous in-line process;

(3) at least one of said stations comprising a flexographic printing station for printing an image on said substrate using a flexographic process; and

(4) at least one of said successive printing stations being an offset lithographic printing station whereby said offset lithographic printing station is used to deposit one image of said series of images on either side of the said substrate in the continuous in-line process.

87. (Twice Amended) Apparatus for a combined offset lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing images on a substrate in a continuous in-line process, said plurality of successive printing stations including at least one offset lithographic printing station and at least one flexographic printing station for depositing lithographic inks, and one or more flexographic inks, coatings and slurries on said substrate,

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whereby said lithographic inks, and said one or more flexographic inks, coatings and slurries may be printed successively on one or both sides of said substrate in the continuous in-line process.

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89. (Amended) The apparatus of Claim 15 wherein a high-velocity air dryer is associated with the impression cylinder of said at least a first one of said flexographic printing stations.

E 17

91. (Twice Amended) Method of combining offset lithographic and flexographic printing in a continuous in-line sheet-fed process, combining the steps of:

(a) providing a plurality of successive offset lithographic sheet-fed printing stations for printing images on cut paper sheets,

(b) providing one or more flexographic printing stations prior to at least one of said offset lithographic stations for printing a flexographic image on said cut paper sheets, each of said flexographic printing stations comprising,

(1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for receiving a flexographic image on said blanket cylinder,

(2) an anilox roller for applying said flexographic image to said flexographic plate on said blanket cylinder, and

(3) an impression cylinder in image-transferring relationship with said blanket cylinder for transferring said flexographic image from said blanket cylinder to said cut paper sheets;

at least one of said succeeding printing stations being a lithographic printing station subsequent to said flexographic printing stations, and using offset lithography for printing additional images on top of said flexographic image on said cut paper sheets; and

(c) providing a high-velocity air dryer associated with the impression cylinder of each flexographic printing station for drying the flexographic image printed on said cut paper sheets.

93. (Amended) The method of Claim 91 wherein the printing of the flexographic image is accomplished by the anilox roller being mounted in a flexographic printing station.

94. (Twice Amended) Method of combining offset lithographic and flexographic printing in a continuous in-line sheet-fed process, combining the steps of:

(a) providing a plurality of successive offset lithographic sheet-fed printing stations for printing images on one or both sides of each of a succession of cut paper sheets;

(b) providing one or more flexographic stations prior to at least one of said offset lithographic stations for printing a flexographic image on one side of each of said cut paper sheets, each flexographic printing station comprising:

(1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for receiving a flexographic image on said blanket cylinder;

(2) an anilox roller for applying said flexographic image to said flexographic plate on said blanket cylinder; and

(3) an impression cylinder in image-transferring relationship with said blanket cylinder for transferring said flexographic image from said blanket cylinder to said cut paper sheets;

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(c) providing at least one succeeding printing station subsequent to said flexographic printing stations, and being a lithographic printing station using offset lithography for printing one or more images on the reverse side of the side on which said flexographic image was printed; and

(d) providing a high velocity air dryer associated with the impression cylinder of each flexographic printing station for drying the flexographic image printed on said cut paper sheets.

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96. (Amended) The method of Claim 94 wherein the printing of flexographic images is accomplished by the anilox roller being mounted in a flexographic printing station.

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97. (Twice Amended) Apparatus for a combined lithographic and flexographic printing process for printing a multicolored image on a succession of sheets comprising:

(a) a plurality of successive printing stations for printing an image on a succession of sheets in a continuous in-line process, said printing stations including both lithographic and one or more flexographic printing station;

(b) said flexographic printing stations having:

(1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for receiving a flexographic image on said blanket cylinder;

(2) an anilox roller for applying said flexographic image to said flexographic plate on said blanket cylinder; and

(3) an impression cylinder in an image-transfer relationship with said blanket cylinder for transferring said flexographic color image from said blanket cylinder to said succession of sheets;

E 19  
(concluded) at least one of said succeeding of printing stations being a lithographic printing stations subsequent to said flexographic printing stations, and using offset lithography for printing additional images on top of said flexographic image; and

(c) a high velocity air dryer associated with the impression cylinder of each flexographic printing stations for quickly drying the flexographic image printed on said succession of sheets.

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99. (Amended) The apparatus of Claim 97 where in the printing of flexographic images is accomplished by the anilox roller being mounted in a flexographic printing station.

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100. (Twice Amended) Apparatus for a combined lithographic and flexographic printing process for printing multicolored images on a succession of sheets, comprising:

(a) a plurality of successive printing stations for printing images on one or both sides of a succession of sheets in a continuous in-line process said printing stations including both lithographic and one or more flexographic printing stations;

(b) said one or more flexographic printing stations having;

(1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for receiving a flexographic image on said cylinder;

(2) an anilox roller for applying said flexographic image to said flexographic plate on said blanket cylinder; and

(3) an impression cylinder in an image-transferring relationship with said blanket cylinder for transferring said flexographic image from said blanket cylinder to said succession of sheets;

(c) at least one of said succeeding printing stations being an offset lithographic printing station subsequent to said flexographic printing station, and using offset lithography for printing one or more additional images on the reverse side of the side on which said flexographic image was printed; and

(d) a high velocity air dryer associated with the impression cylinder of each flexographic printing station for drying the flexographic image printed on said succession of sheets.

102. (Amended). The apparatus of Claim 100 wherein the printing of flexographic images is accomplished by the anilox roller being mounted in a flexographic printing station.

103. (Amended) Method of combining offset lithographic and flexographic printing in a single pass printing process, combining the steps of:

(a) providing a plurality of successive offset lithographic printing stations for printing images on a substrate,

(b) providing one or more flexographic printing stations prior to at least one of said offset lithographic printing stations for printing one or more flexographic images on said substrate, each of said flexographic printing stations comprising:

(1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for receiving the flexographic images on said blanket cylinder;

(2) an anilox roller for applying said flexographic image to said flexographic plate on said blanket cylinder; and

(3) an impression cylinder in image-transferring relationship with said blanket cylinder for transferring said flexographic images from said blanket cylinder to said substrate;

and

(c) providing a dryer associated with the impression cylinder of each flexographic printing station for drying the flexographic images printed on said substrate.

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108. (Amended) The method of Claim 103 wherein the printing of the flexographic image is accomplished by the anilox roller being mounted in a flexographic printing station.

109. (Amended) Method of combining offset lithographic and flexographic printing in a continuous in-line printing process, combining the steps of:

(a) providing a plurality of successive offset lithographic sheet-fed printing stations for printing images on substrate;

(b) providing one or more flexographic stations prior to at least one of said offset lithographic printing stations for printing one or more flexographic images on said substrate, each flexographic printing station comprising:

(1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for receiving said flexographic images on said blanket cylinder;

(2) an anilox roller for applying said flexographic images to said flexographic plate on said blanket cylinder; and

(3) an impression cylinder in image-transferring relationship with said blanket cylinder for transferring said flexographic images from said blanket cylinder to said substrate;



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(c) after said flexographic printing, stations, one or more succeeding offset lithographic printing stations for printing one or more images on the reverse side of the side on which said flexographic images was printed; and

(d) providing a dryer associated with the impression cylinder of each flexographic printing station for drying the flexographic images printed on said substrate.

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113. (Amended) The method of Claim 108 wherein the printing of one or more flexographic images is accomplished by the anilox roller being mounted in a flexographic printing station.

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114. (Amended) Apparatus for a combined offset lithographic and flexographic single pass printing process for printing one or more images on a substrate, comprising:

(a) a plurality of successive offset lithographic printing stations for printing lithographic images on a substrate;

(b) one or more flexographic printing stations prior to at least one of said offset lithographic printing stations for printing one or more flexographic images on said substrate, each of said flexographic printing stations having:

(1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for receiving said one or more flexographic images on said blanket cylinder;

(2) an anilox roller for applying said one or more flexographic images to said flexographic plate on said blanket cylinder; and

(3) an impression cylinder in an image-transfer relationship with said blanket cylinder for transferring said one or more flexographic images from said blanket cylinder to said substrate; and

(c) a dryer associated with the impression cylinder of each flexographic printing stations for quickly drying said one or more flexographic images printed on said substrate.

115. (Amended) The apparatus of Claim 114 wherein the printing process is continuous in-line.

116. (Amended) The apparatus of Claim 114 wherein the substrate comprises cut paper sheets.

117. (Amended) The apparatus of Claim 114 wherein the printing of one or more flexographic images is accomplished by the anilox roller being mounted in an auxiliary retractable coater unit adapted to engage said flexographic plate on said blanket cylinder.

118. (Amended) The apparatus of Claim 112 where in the printing of flexographic images is accomplished by the anilox roller being mounted in a flexographic printing station.

119. (Amended) Apparatus for a combined lithographic and flexographic continuous in-line printing process for printing one or more images on substrates comprising:

- (a) a plurality of successive offset lithographic printing stations for printing images on said substrates;
- (b) one or more flexographic printing stations prior to at least one of said offset lithographic printing stations for printing one or more flexographic images on said substrates, each of said flexographic printing stations having;
- (1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for receiving one or more flexographic images on said cylinder;

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- (2) an anilox roller for applying said flexographic images to said flexographic plate on said plate cylinder; and
  - (3) an impression cylinder in an image transferring relationship with said blanket cylinder for transferring said flexographic images from said blanket cylinder to said substrates;
  - (c) at least one of said succeeding printing stations being a lithographic printing station using offset lithographic for printing, one or more additional images on the reverse side of said substrates on which said flexographic image was printed; and
  - (d) dryer associated with the impression cylinder of each flexographic printing station for drying the flexographic images printed on said substrates.

120. (Amended) The apparatus of Claim 117 wherein the printing process is intended for a succession of cut paper sheets that are fed by a sheet feeder.

121. (Amended) The apparatus of Claim 119 wherein said substrates are a continuous web.

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123. (Amended) The apparatus of Claim 119 wherein the printing of one or more flexographic images is accomplished by the anilox roller being mounted in a flexographic printing station.

124. (Amended) Method of combining offset lithographic and flexographic printing in a single pass printing process combining the steps of:

- (a) providing a plurality of offset lithographic printing stations for printing one or more images on a substrate;

(b) providing one or more flexographic printing stations prior to at least one of said plurality of offset lithographic printing stations for printing one or more flexographic images on said substrate; and

(c) providing a dryer associated with said one or more flexographic printing stations for drying said flexographic images printed on said substrate.

125. (Amended) Method of combining offset lithographic and flexographic printing in a continuous in-line printing process, combining the steps of:

(a) providing a plurality of offset lithographic printing stations for printing one or more images on a substrate;

(b) providing one or more flexographic printing stations prior to at least one of said plurality of offset lithographic printing stations for printing one or more flexographic images on said substrate;

(c) after said one or more flexographic printing stations, providing one or more succeeding printing offset lithographic printing stations for printing one or more images on the reverse side of the side on which said flexographic images were printed; and

(d) providing a dryer associated with said one or more flexographic printing stations for drying the flexographic images printed on said substrate.

130. (Amended) The method of Claim 124 or 125 wherein the printing of the flexographic image is accomplished by an anilox roller being mounted in a flexographic printing station.

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137. (Amended) The method of Claim 124 or 125 wherein the flexographic images are printed with a liquid vehicle slurry containing an encapsulated essence.

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141. (Amended) The apparatus of Claim 138 or 139 wherein the printing stations are for cut paper sheets.

142. (Amended) The apparatus of Claim 138 or 139 wherein the printing stations are for a continuous web.

E 29

144. (Amended) The apparatus of Claim 138 or 139 wherein the printing of the flexographic image is accomplished by an anilox roller being mounted in a flexographic printing station.

E 30

151. (Amended) The apparatus of Claim 138 or 139 wherein the flexographic images are printed with a liquid vehicle spin containing an encapsulated essence.

#### REMARKS

Claims 1-151 are pending in the application. The Examiner has rejected claims 6-11, 15-38, and 42-151. Claims 1-5, 12-14, and 39-41 have been allowed. Applicants gratefully acknowledge the Examiner's allowance of claims 1-5, 12-14, and 39-41. As the Examiner has indicated, applicants also acknowledge that amendments to the specification and claims must comply with 37 C.F.R. § 1.121 and sincerely appreciate the Examiner's waiver of that requirement for amended claims 91, 94, 97, and 100 as submitted on March 12, 2001.

Applicants have and will make efforts to comply with the requirements of 37 C.F.R. § 1.121 in the above-listed and future amendments.

Claims 42-87, 94, 95, 100-102, 109, 110, 112, 113, 119-124, 125, 127-137, 139, and 141-151 have been rejected under 35 U.S.C. § 251 as being based upon new matter. Claims 42-87, 94, 95, 100-102, 109, 110, 112, 113, 119-123, 125, 127-137, 139, and 141-151 have been rejected under 35 U.S.C. § 112, first paragraph as containing subject matter not described in the specification. Claim 78 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter that applicant regards as the invention. Claims 9, 17-29, 44-79, 82-87, 89, and 91-151 are objected to under 37 C.F.R. § 1.75(a) as being indefinite for failing to point out and distinctly claim the subject matter that applicant regards as the invention. Claims 6-11, 15-38, 42-57, 60-77, 79-81, and 85-151 have been rejected under 35 U.S.C. § 103(a). Claims 6, 10, 29, 31, 38, 44-46, and 49 have been rejected under 35 U.S.C. § 102.

Rejections Under 35 U.S.C. § 251 and 35 U.S.C. § 112, first paragraph

Claims 42-87, 94, 95, 100-102, 109, 110, 112, 113, 119-124, 125, 127-137, 139, and 141-151 have been rejected as being directed to new matter and as containing subject matter not described in the specification. The Examiner has cited four specific reasons for the rejections.

First, these claims are, in part, directed to printing on both sides of a substrate in a single-pass printing process, which is known as perfector printing. Georg Hartung, Ulrich Jung, and Jurgen Schneider all had, at the time the invention of this application was made, and presently have, ordinary skill in the art pertaining to the subject matter of the invention. Georg Hartung, Ulrich Jung, and Jurgen Schneider have declared that they believe that the disclosure reasonably conveys to one skilled in the relevant art that the Applicants had possession of the claimed

invention as it relates to perfector printing. Furthermore, they declared that they believe that disclosure of a continuous in-line process necessarily implies perfector printing.

Second, the Examiner has noted that the disclosure provides no support for the anilox roller being mounted in a "dedicated" flexographic printing station as recited in claims 93, 96, 99, 102, 108, 113, 118, 123, 130, and 144. The applicant has amended claims 93, 96, 99, 102, 108, 113, 118, 123, 130, and 144 to delete the word "dedicated."

Third, the examiner has noted that the disclosure does not support printing the slurry at "any" of the printing stations. According to the Examiner's suggestion, the claims have been amended to recite printing the slurry at the flexographic printing stations, which the Examiner acknowledges is supported by the specification.

Fourth, the Examiner notes that the disclosure does not provide support for the terminology "thin controlled layers" as recited in claim 72. Claim 72 has been amended to recite "series of images," which is supported by the specification, in place of "thin controlled layers."

Therefore, Applicants respectfully submit that the subject matter of claims 42-87, 94, 95, 100-102, 109, 110, 112, 113, 119-124, 125, 127-137, 139, and 141-151 is described in the application and are not directed to new matter. Consequently, Applicants respectfully submit that rejections of these claims under 35 U.S.C. § 251 and 35 U.S.C. § 112, first paragraph have been overcome. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection of claims 42-87, 94, 95, 100-102, 109, 110, 112, 113, 119-124, 125, 127-137, 139, and 141-151 under 35 U.S.C. § 251 and 35 U.S.C. § 112, first paragraph.

Rejection Under 35 U.S.C. § 112, second paragraph

The Examiner has rejected claim 78 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter that applicant regards as

the invention. Specifically, amended claim 78 did not depend from any other claim. According to the Examiner's suggestion, Applicants have amended claim 78 to depend from claim 77. Applicants therefore respectfully submit that the rejection of claim 78 under 35 U.S.C. § 112, second paragraph has been overcome and respectfully request that the Examiner withdraw this rejection of claim 78.

Objections Under 37 C.F.R. § 1.75(a)

Claims 9, 17-29, 44-79, 82-87, 89, and 91-151 are objected to under 37 C.F.R. § 1.75(a) as being indefinite for failing to point out and distinctly claim the subject matter that applicant regards as the invention. Specifically, the Examiner has noted that the claims contain numerous instances of inconsistent terminology that confuses the scope of the claims. Applicants have amended claims 9, 17-29, 44-79, 82-87, 89, and 91-151 according to the Examiner's suggestions and respectfully request that the objections to these claims be withdrawn.

Rejections Under 35 U.S.C. § 102 and § 103

Claims 6-11, 15-38, 42-57, 60-77, 79-81, and 85-151 have been rejected under 35 U.S.C. § 103(a). Claims 6, 10, 29, 31, 38, 44-46, and 49 have been rejected under 35 U.S.C. § 102. The Applicants respectfully submit that the attached declaration of Georg Hartung, Ulrich Jung, and Jurgen Schneider overcomes these rejections. The declaration is incorporated by reference for each of the following remarks regarding the Examiner's rejections of claims under 35 U.S.C. § 102 and § 103.



With respect to Claims 6-8, 38, and 49-51, persons of ordinary skill in the art have declared under oath that it would not have been obvious to utilize the apparatus and method of MAN Roland to print aqueous based metallic inks in view of Pantone and Offsetpraxis to achieve a superior metallic image. With respect to the dependent claims it would not have been obvious to one of ordinary skill in the art through routine experimentation to use either uniform or non-uniform sized metal particles to achieve the desired metallic effect. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 9 and 52, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of MAN Roland, as modified by Pantone and Offsetpraxis, with a plate cylinder mounted flexographic plate and blanket cylinder in view of Bird so as to selectively utilize the unit as a flexographic or lithographic unit. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 42 and 43, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of MAN Roland, as modified by Pantone and Offsetpraxis, with perfecter printing in view of Schone et al. so as to print both sides of the substrate in one pass. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 10, 29, and 31-33, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and process disclosed by MAN Roland with the capability of printing a flexographic image in view of Satterwhite to achieve the benefits of printing with a flexographic unit. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 11, 30 and 60-66, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of MAN Roland, as modified by Satterwhite, with a plate cylinder mounted flexographic plate and blanket cylinder in view of Bird so as to selectively utilize the unit as a flexographic or lithographic unit. Additionally, it would not have been obvious to one of ordinary skill in the art to provide the apparatus and method of MAN Roland, as modified by Satterwhite, with interstation dryers in view of Bird so as to dry images before subsequent printing and/or coating. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claim 67, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the method of MAN Roland, as modified by Satterwhite and Bird, with the step of printing an encapsulated essence in view of Schumacher et al. to apply a sufficiently heavy coating. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 68-71, persons of ordinary skill in the art have declared under oath that it would not have been obvious to utilize the apparatus and method of MAN Roland, as modified by Satterwhite and Bird, to print aqueous based metallic inks in view of Pantone and Offsetpraxis to achieve a superior metallic image. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 34-36, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the method of MAN Roland, as modified by Satterwhite, with the step of printing an encapsulated essence in view of Schumacher et al. to apply a sufficiently heavy coating. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 42, 43, and 53, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of MAN Roland, as modified by Satterwhite, with perfect printing in view of Schone et al. so as to print both sides of the substrate in one pass. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claim 54, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of MAN Roland, as modified by Satterwhite and Schone et al., with a plate cylinder mounted flexographic plate and blanket cylinder in view of Bird to so as to selectively utilize the unit as a flexographic or lithographic unit. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 15-23, 37, 44-48, 55, 88-93, 97-99, 103-108, 114-118, 124, 126-130, 138, and 140-144, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of MAN Roland with a plate cylinder mounted flexographic plate and blanket cylinder in view of Bird to so as to selectively utilize the unit as a flexographic or lithographic unit. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claim 24, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the method of MAN Roland, as modified by Bird, with the step of printing an encapsulated essence in view of Schumacher et al. to apply a sufficiently heavy coating. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 25-28, 131-134, and 145-148, persons of ordinary skill in the art have declared under oath that it would not have been obvious to utilize the apparatus and method of MAN Roland, as modified by Bird, to print aqueous based metallic inks in view of Pantone and Offsetpraxis to achieve a superior metallic image. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 56, 57, 135, 136, 149, and 150, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of MAN Roland, as modified by Bird, with the step of printing with an opaque white ink of Roulleau so as to provide sufficient contrast for subsequently printed colors. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 137 and 151, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the method of MAN Roland, as modified by Bird and Roulleau, with the step of printing an encapsulated essence in view of Schumacher et al. to apply a sufficiently heavy coating. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 42, 43, 80, 81, 94-96, 100-102, 109-113, 119-123, 125, 127-130, 139, and 141-144, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of MAN Roland, as modified by Bird, with perfecter printing in view of Schone et al. so as to print both sides of the substrate in one pass. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 131-134 and 145-148, persons of ordinary skill in the art have declared under oath that it would not have been obvious to utilize the apparatus and method of MAN Roland, as modified by Bird and Schone, et al., to print aqueous based metallic inks in view of Pantone and Offsetpraxis to achieve a superior metallic image. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 135, 136, 149, and 150, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of MAN Roland, as modified by Bird and Schone et al., with the step of printing with an opaque white ink of Roulleau so as to provide sufficient contrast for subsequently printed colors. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 137 and 151, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the method of MAN Roland, as modified by Bird, Schone, et al., and Roulleau, with the step of printing an encapsulated essence in view of Schumacher et al. to apply a sufficiently heavy coating. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 72, 74, 76, 86, and 87, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of MAN Roland with perfecter printing in view of Schone et al. so as to print both sides of the substrate in one pass. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claim 73, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of MAN Roland, as modified by Schone et al., with a plate cylinder mounted flexographic plate and blanket cylinder in view of Bird so as to selectively utilize the unit as a flexographic or lithographic unit. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 77 and 79, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the method of MAN Roland, as modified by Schone, et al., with the step of printing an encapsulated essence in view of Schumacher et al. to apply a sufficiently heavy coating. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 6, 10, 29, 31, 38, 44-46, and 49, persons of ordinary skill in the art have declared under oath that Hartung et al. (U.S. 5,638,752) does not teach the apparatus and method as recited.

With respect to Claims 6, 10, 29, 31, 38, 44-46, and 49, persons of ordinary skill in the art have declared under oath that Hartung et al. (EP 620,115) does not teach the apparatus and method as recited.

With respect to Claims 7, 8, 32, 33, 47, 48, 50 and 51, each of the recited sizes of particles, ink types, or substrate types would not have been obvious to one of ordinary skill in the art through routine experimentation and were not conventional in the art. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.



With respect to Claims 9, 11, 15-23, 25-28, 30, 37, 52, 55-57, 60-66, 68-71, 88-90, 91-93, 97-99, 103-108, 114-118, 124, 126-134, 138, and 140-148, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of Hartung et al. ('752) or ('115) with a plate cylinder mounted flexographic plate and blanket cylinder in view of Bird so as to selectively utilize the unit as a flexographic or lithographic unit. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 53, 72, 74-76, 81, and 85-87, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of Hartung et al. ('752) or ('115) with perfecter printing in view of Schone et al. so as to print both sides of the substrate in one pass. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 54, 73, 80, 94-96, 100-102, 109-113, 119-123, 125, 127-134, 139 and 142-148, persons of ordinary skill in the art have declared under oath that it would not have been obvious to provide the apparatus and method of Hartung et al. ('752) or ('115) with a plate cylinder mounted flexographic plate and blanket cylinder in view of Bird so as to selectively utilize the unit as a flexographic or lithographic unit and with perfecter printing in view of Schone et al. so as to print both sides of the substrate in one pass. Furthermore, nothing in the cited references teaches, suggests or motivates one of ordinary skill in the art to combine the references in the manner described by the Examiner.

With respect to Claims 6, 10, 29, 31, 38, 44-46, and 49, persons of ordinary skill in the art have declared under oath that MAN Roland does not teach the apparatus and method as recited.

Therefore, Applicants respectfully submit that the attached declaration of Georg Hartung, Ulrich Jung, and Jurgen Schneider overcomes the rejection of claims 6-11, 15-38, 42-57, 60-77, 79-81, and 85-151 under 35 U.S.C. § 103(a) and 35 U.S.C. § 102. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection of claims 6-11, 15-38, 42-57, 60-77, 79-81, and 85-151 under 35 U.S.C. § 103(a) and 35 U.S.C. § 102.

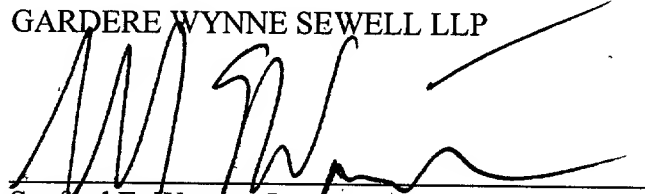
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CONCLUSION

In light of the amendments and arguments stated above, Applicants respectfully submit that the application is in allowable form. As such, Applicants respectfully request reconsideration and allowance of claims 6-11, 15-38, and 42-151. Applicants believe that no fees are currently due. However, if a fee is due, please charge this fee to Deposit Account No. 07-0153. Accordingly, a favorable action in the form of an early Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned for any reason that would advance the instant Application to issue.

Respectfully submitted,

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Sanford E. Warren, Jr.  
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Dated: September 14, 2001

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Mark-up text for reissue application serial number 09/315,796:

In the specification:

(Col. 1, lines 17-24) A steel or ceramic ink metering roller. Its surface is engraved with tiny, uniform cells that carry and deposit a thin, controlled layer of ink film or coating material onto the plate. In [flexo] flexographic presswork, anilox rollers transfer a controlled ink film from the rubber plate (or rubber-covered roller) to the web to print the image. Anilox rollers are also used in remoistenable glue units and to create "scratch-and-sniff" perfume ads.

(Col. 4, lines 46-51) Whenever a station is used for flexographic printing, a flexographic plate [image] is placed on the blanket cylinder for receiving the liquid vehicle and transferring the liquid vehicle to the [impression cylinder] substrate for printing. An anilox roller is associated with the flexographic plate for supplying the liquid vehicle which may be an aqueous-based vehicle.

In the claims:

9. (Amended) Apparatus as in claim 6 further including: said flexographic printing station including a plate cylinder having a flexographic plate thereon, a blanket cylinder, and an impression cylinder;

a flexographic plate image transferred from said plate cylinder to said blanket cylinder, said image being formed of said metallic coating, said impression cylinder in ink-transfer relationship with said blanket cylinder, said blanket cylinder transferring said metallic coating to said [impression cylinder] substrate for printing said flexographic plate image on said substrate; and an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

15. (Amended) Apparatus for a combined lithographic/flexographic printing process comprising:  
a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;

said printing stations including both lithographic and flexographic printing stations;

a blanket cylinder at at least a first one of said flexographic printing stations;

an impression cylinder associated with at least said first one of said flexographic printing stations;

flexographic ink-providing means at said at least first one of said flexographic printing stations for applying a flexographic ink to said blanket cylinder to form an image;

a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and

at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image using offset lithography.

21. (Amended) Apparatus as in claim 17 further including halftone printing plates for printing said additional colored ink images.

44. (Twice Amended) Apparatus for a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for depositing a series of images on one side of a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a liquid vehicle image on said substrate using a flexographic process; and  
at least one of said successive printing stations being a lithographic printing station;  
whereby said substrate is printed on top of or on the opposite side of that previously printed at said at least one [of said] successive lithographic printing stations using the lithographic process in said continuous in-line process.

45. (Twice Amended) Apparatus as in claim 44 wherein at least one image of said series of images at the flexographic printing station is a coating material.

46. (Twice Amended) Apparatus as in claim 44 wherein at least one image of said series of images at said at least one of the lithographic printing stations is an ink.

52. (Amended) Apparatus as in claim 49 further including: said flexographic printing station including a plate cylinder having a flexographic plate thereon, a blanket cylinder, and an impression cylinder;

a flexographic plate image transferred from said plate cylinder to said blanket cylinder, said image being formed of said metallic coating, said impression cylinder in ink-transfer relationship with said blanket cylinder, said blanket cylinder transferring said metallic coating to said [impression cylinder] substrate for printing said flexographic plate image on said substrate; and an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

55. (Twice Amended) Apparatus for creating a combined lithographic/ flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for depositing a series of images on a substrate in a continuous in-line process;

at least one of said successive printing stations being a flexographic [stations] station and comprising:

(1) a supply of liquid coating;

(2) a plate cylinder associated with a blanket cylinder, said plate cylinder having a flexographic plate thereon;

(3) an anilox roller associated with said liquid supply coating and said plate cylinder for delivering said liquid coating to said flexographic plate to form an image for transfer to said blanket cylinder;

(4) an impression cylinder for receiving said liquid coating image transferred from said blanket cylinder and printing said image on one side of said substrate; and

at least one offset lithographic printing station for receiving said substrate and printing on top of or on the opposite side to that previously printed.

57. (Twice Amended) Apparatus as in claim 56 further including an air dryer associated with each impression cylinder on [each] said flexographic station, said air dryer having sufficient air velocity for drying said liquid coating before the substrate is transferred to the successive printing station in said continuous in-line process.

58. (Twice Amended) Apparatus for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for depositing a series of images on a substrate in a continuous in-line process, said printing stations including, both lithographic and at least two flexographic printing stations;

a blanket cylinder at at least a first one of said flexographic printing stations;

flexographic ink-providing means [at the other of said flexographic printing stations] for

applying a flexographic ink to said blanket cylinder to form an image on one side of a substrate;

a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and

at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image or the opposite side to that previously printed using offset lithography.

60. (Twice Amended) Apparatus for a combined lithographic/flexographic printing process for printing a multicolored image comprising:

a plurality of successive printing stations for depositing ink to form a series of images on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;

at least one of said flexographic printing stations having:

(1) a plate cylinder and a blanket cylinder, said plate cylinder including a flexographic plate having an image thereon for transferring a flexographic color ink image to said blanket cylinder;



(2) an etched anilox roller for applying a flexographic color ink to said flexographic plate on said plate cylinder;

(3) an impression cylinder in ink-transfer relationship with said blanket cylinder for transferring said flexographic color ink image from said blanket cylinder to one side of said substrate; and

at least one of said succeeding printing stations being a lithographic printing station using offset lithography for printing additional colored ink images on top of said flexographic ink image or on the opposite side to that that previously printed.

64. (Amended) Apparatus as in claim 60 further including halftone printing plates for printing said additional colored ink images.

66. (Amended) Apparatus as in claim 60 wherein [said printing apparatus includes] at least one of the successive printing stations is a sheet-fed press.

72. (Twice Amended) A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a plurality of successive [lithographic/flexographic] lithographic and flexographic printing stations for depositing a series of images on a substrate;

printing [an] a flexographic ink image as one of said [thin controlled layers] series of images on one side of said substrate at at least one of said flexographic stations;

transferring said printed substrate to at least one subsequent printing station in said continuous in-line process; and

printing an image on the reverse side of said substrate having said flexographic ink image, at at least one of said other subsequent lithographic printing stations with an offset lithographic process in the continuous in-line process.

73. (Amended) A method as in claim 72 further comprising the step of drying said flexographic ink image on said substrate with an air dryer prior to printing [said] colored ink images thereon.

74. (Amended) A method as in claim [72] 73 further including the step of printing a coating on top of said colored ink images at one of said plurality of subsequent printing stations.

75. (Amended) A method as in claim [72] 73 wherein [said colored inks forming] said colored ink images are formed from waterless colored inks.

76. (Amended) A method as in claim [72] 75 wherein said waterless colored inks [forming said colored ink images] are in a solvent-based liquid vehicle.

77. (Amended) A method as in claim 72 further including the steps of:

printing a slurry on one side of said substrate at any of said flexographic printing stations in said continuous in-line process;

using an encapsulated essence in said slurry; and

printing an ink on the reverse side of said substrate at a subsequent printing station in said in-line process.

78. (Twice Amended) A method as in claim 77 further including the step of printing an aqueous-based coating over said slurry.

82. (Twice Amended) A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

- (1) providing a plurality of successive printing stations for depositing a series of images on a substrate in said in-line continuous process;
- (2) utilizing an anilox roller to transfer a liquid ink as one of said thin controlled layers to a flexographic plate image at at least one of said printing stations;
- (3) printing said liquid ink from said flexographic plate image to one side of [a] said substrate;
- (4) transferring said printed substrate with said liquid ink image to a subsequent printing station in said inline printing process;
- (5) repeating steps (2)-(4) at subsequent printing stations in said in-line process to achieve a desired opacity ink image on the one side of said substrate; and
- (6) printing an ink pattern on the reverse side of said substrate using an offset lithographic process.

85. (Twice Amended) A method of combining offset lithography and flexography using a plurality of successive printing stations in a continuous in-line process, at least one of said stations comprising a flexographic printing station for printing an image on [said] a substrate using a flexographic process:

- (1) printing an image at one or more of said printing stations on [a] said substrate using an offset lithographic process;
- (2) transferring said image printed substrate to an additional and flexographic printing station and printing at said flexographic and additional printing station a coating on all or part of said image on said substrate;
- (3) transferring said substrate to one or more additional printing stations for printing the reverse side of the said substrate; and
- (4) printing an image on said reverse side of said substrate at one of [such] said one or more printing stations using an offset lithographic process in the continuous inline process.

86. (Twice Amended) Apparatus for a combined offset lithographic and flexographic printing process comprising:

- (1) a substrate;
- (2) a plurality of successive printing stations for depositing a series of images selected from a group consisting of lithographic and flexographic inks, coatings and slurries on one or both sides of a substrate in a continuous in-line process;
- (3) at least one of said stations comprising a flexographic printing station for printing an image on said substrate using a flexographic process; and
- (4) at least one of said successive printing stations being an offset lithographic printing station whereby said offset lithographic printing station is used to deposit one image of said [lithographic materials] series of images on either side of the said substrate in the continuous in-line process[;].

87. (Twice Amended) Apparatus for a combined offset lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing images on a substrate in a continuous in-line process, said plurality of successive printing stations including [both] at least one offset lithographic printing station and at least one flexographic printing [stations] station for depositing lithographic inks, and one or more flexographic inks, coatings and slurries on said substrate, whereby said lithographic inks, and said one or more flexographic inks, coatings and slurries may be printed successively on one or both sides of said substrate in the continuous in-line process.

89. (Amended) The apparatus of Claim 15 wherein a high-velocity air dryer is associated with the impression cylinder of said at least a first one of said flexographic printing [station] stations.

91. (Twice Amended) Method of combining offset lithographic and flexographic printing in a continuous in-line sheet-fed process, combining the steps of:

- (a) providing a plurality of successive offset lithographic sheet-fed printing stations for printing images on cut paper sheets,
- (b) providing one or more flexographic printing stations prior to at least one of said offset lithographic stations for printing a flexographic image on [each of] said cut paper sheets, each of said flexographic printing stations comprising,
  - (1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for [transferring] receiving a flexographic image [to] on said blanket cylinder,

(2) an anilox roller for applying [a] said flexographic image to said flexographic plate on said blanket cylinder, and

(3) an impression cylinder in image-transferring relationship with said blanket cylinder for transferring said flexographic image from said blanket cylinder to said [substrate] cut paper sheets;

at least one of said succeeding printing stations being a lithographic printing station subsequent to said flexographic printing stations, and using offset lithography for printing additional images on top of said flexographic image on [each sheet] said cut paper sheets; and

(c) providing a high-velocity air dryer associated with the impression cylinder of each flexographic printing station for [doing] drying the flexographic image printed on [each sheet] said cut paper sheets.

93. (Amended) The method of Claim 91 wherein the printing of the flexographic image is accomplished by the anilox roller being mounted in a [dedicated] flexographic printing station.

94. (Twice Amended) Method of combining offset lithographic and flexographic printing in a continuous in-line sheet-fed process, combining the steps of:

(a) providing a plurality of successive offset lithographic sheet-fed printing stations for printing images on one or both sides of each of a succession of cut paper sheets;

(b) providing one or more flexographic stations prior to at least one of said offset lithographic stations for printing a flexographic image on one side of each of said cut paper sheets, each flexographic printing station comprising:

- (1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for [transferring] receiving a flexographic image [to] on said blanket cylinder;
- (2) an anilox roller for applying [a] said flexographic image to said flexographic plate on said blanket cylinder; and
- (3) an impression cylinder in image-transferring relationship with said blanket cylinder for transferring said flexographic image from said blanket cylinder to said [substrate] cut paper sheets;
- (c) providing at least one succeeding printing station subsequent to said flexographic printing stations, and being a lithographic printing station using offset lithography for printing or or more images on the reverse side of the side on which said flexographic image was printed; and
- (d) providing a high velocity air dryer associated with the impression cylinder of each flexographic printing station for drying the flexographic image printed on [each sheet] said cut paper sheets.

96. (Amended) The method of Claim [91] 94 wherein the printing of flexographic images is accomplished by the anilox roller being mounted in a [dedicated] flexographic printing station.

97. (Twice Amended) Apparatus for a combined lithographic and flexographic printing process for printing a multicolored image on a succession of sheets comprising:

- (a) a plurality of successive printing stations for printing an image on a succession of sheets in a continuous in-line process, said printing stations including both lithographic and one or more flexographic printing station;
- (b) [each of] said flexographic printing stations having:

- (1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for [transferring] receiving a flexographic image [to] on said blanket cylinder;
- (2) an anilox roller for applying [a] said flexographic image to said flexographic plate on said blanket cylinder; and
- (3) an impression cylinder in an image-transfer relationship with said blanket cylinder for transferring said flexographic color image from said blanket cylinder to [each of the] said succession of sheets;
- at least one of said succeeding of printing stations being a lithographic printing stations subsequent to said flexographic printing stations, and using offset lithography for printing additional images on top of said flexographic image; and
- (c) a high velocity air dryer associated with the impression cylinder of each flexographic printing stations for quickly drying the flexographic image printed on [each sheet] said succession of sheets.

99. (Amended) The apparatus of Claim 97 where in the printing of flexographic images is accomplished by the anilox roller being mounted in a [dedicated] flexographic printing station.

100. (Twice Amended) Apparatus for a combined lithographic and flexographic printing process for printing multicolored images on a succession of sheets, comprising:

- (a) a plurality of successive printing stations for printing images on one or both sides of a succession of sheets in a continuous in-line process said printing stations including both lithographic and one or more flexographic printing stations;
- (b) [each of] said one or more flexographic printing stations having;



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- (1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for [transferring] receiving a flexographic image [to] on said cylinder;
  - (2) an anilox roller for applying [a] said flexographic image to said flexographic plate on said [plate] blanket cylinder; and
  - (3) an impression cylinder in an image-transferring relationship with said blanket cylinder for transferring said flexographic image from said blanket cylinder to [each of the] said succession of sheets;
  - (c) at least one of said succeeding printing stations being an offset lithographic printing station subsequent to said flexographic printing station, and using offset [lithographic] lithography for printing one or more additional images on the reverse side of the side on which said flexographic image was printed; and
  - (d) a high velocity air dryer associated with the impression cylinder of each flexographic printing station for drying the flexographic image printed on [each sheet] said succession of sheets.

102. (Amended) The apparatus of Claim 100 wherein the printing of flexographic images is accomplished by the anilox roller being mounted in a [dedicated] flexographic printing station.

103. (Amended) Method of combining offset lithographic and flexographic printing in a single pass printing process, combining the steps of:

- (a) providing a plurality of successive offset lithographic printing stations for printing images on a substrate,

(b) providing one or more flexographic printing stations prior to at least one of said offset lithographic printing stations for printing one or more flexographic images on said substrate, each of said flexographic printing stations comprising:

- (1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for [transferring] receiving the flexographic images [to] on said blanket cylinder;
- (2) an anilox roller for applying [a] said flexographic image to said flexographic plate on said blanket cylinder; and
- (3) an impression cylinder in image-transferring relationship with said blanket cylinder for transferring said flexographic images from said blanket cylinder to said substrate;

and

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202509-09 15:00
- (c) providing a dryer associated with the impression cylinder of each flexographic printing station for drying the flexographic images printed on said substrate.

108. (Amended) The method of Claim 103 wherein the printing of the flexographic image is accomplished by the anilox roller being mounted in a [dedicated] flexographic printing station.

109. (Amended) Method of combining offset lithographic and flexographic printing in a continuous in-line printing process, combining the steps of:

- (a) providing a plurality of successive offset lithographic sheet-fed printing stations for printing images on [said] a substrate;
- (b) providing one or more flexographic stations prior to at least one of said offset lithographic printing stations for printing one or more flexographic images on said substrate, each flexographic printing station comprising:

(1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for [transferring] receiving said flexographic images [to] on said blanket cylinder;

(2) an anilox roller for applying said flexographic images to said flexographic plate on said blanket cylinder; and

(3) an impression cylinder in image-transferring relationship with said blanket cylinder for transferring said flexographic images from said blanket cylinder to said substrate;

(c) after said flexographic printing, stations, one or more succeeding offset lithographic printing stations for printing one or more images on the reverse side of the side on which said flexographic images was printed; and

(d) providing a dryer associated with the impression cylinder of each flexographic printing station for drying the flexographic images printed on said substrate.

113. (Amended) The method of Claim 108 wherein the printing of one or more flexographic images is accomplished by the anilox roller being mounted in a [dedicated] flexographic printing station.

114. (Amended) Apparatus for a combined offset lithographic and flexographic single pass printing process for printing one or more images on a substrate, comprising:

(a) a plurality of successive offset lithographic printing stations for printing lithographic images on a substrate;

(b) one or more flexographic printing stations prior to at least one of said offset lithographic printing stations for printing one or more flexographic images on said substrate, each of said flexographic printing stations having:

- (1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for [transferring] receiving said one or more flexographic images [to] on said blanket cylinder;
- (2) an anilox roller for applying [a] said one or more flexographic images to said flexographic plate on said blanket cylinder; and
- (3) an impression cylinder in an image-transfer relationship with said blanket cylinder for transferring said one or more flexographic images from said blanket cylinder to said substrate; and
- (c) a dryer associated with the impression cylinder of each flexographic printing stations for quickly drying [the] said one or more flexographic images printed on said substrate.

115. (Amended) The [method] apparatus of Claim [114wherein] 114 wherein the printing process is continuous in-line.

116. (Amended) The [method] apparatus of Claim 114 wherein the substrate comprises cut paper sheets.

117. (Amended) The apparatus of Claim [114wherein] 114 wherein the printing of one or more flexographic images is accomplished by the anilox roller being mounted in an auxiliary retractable coater unit adapted to engage said flexographic plate on said blanket cylinder.

118. (Amended) The apparatus of Claim 112 where in the printing of flexographic images is accomplished by the anilox roller being mounted in a [dedicated] flexographic printing station.

119. (Amended) Apparatus for a combined lithographic and flexographic continuous in-line printing process for printing one or more images on substrates comprising:

- (a) a plurality of successive offset lithographic printing stations for printing images on [a substrate] said substrates;
- (b) one or more flexographic printing stations prior to at least one of said offset lithographic printing stations for printing one or more flexographic images on said [substrate] substrates, each of said flexographic printing stations having;
  - (1) a blanket cylinder, said blanket cylinder including a flexographic plate having an image thereon for [transferring] receiving one or more flexographic images [to] on said cylinder;
  - (2) an anilox roller for applying said flexographic images to said flexographic plate on said plate cylinder; and
  - (3) an impression cylinder in an image transferring relationship with said blanket cylinder for transferring said flexographic images from said blanket cylinder to said [substrate] substrates;
- (c) at least one of said succeeding printing stations being a lithographic printing station using offset lithographic for printing, one or more additional images on the reverse side of [the substrate] said substrates on which said flexographic image was printed; and
- (d) dryer associated with the impression cylinder of each flexographic printing station for drying the flexographic images printed on [each sheet] said substrates.

120. (Amended) The apparatus of Claim 117 wherein the printing process is intended for a succession of cut paper sheets that are fed by a sheet feeder.

121. (Amended) The apparatus of Claim 119 wherein [the substrate is] said substrates are a continuous web.

123. (Amended) The apparatus of Claim 119 wherein the printing of one or more flexographic images is accomplished by the anilox roller being mounted in a [dedicated] flexographic printing station.

124. (Amended) Method of combining offset lithographic and flexographic printing in a single pass printing process combining the steps of:

- 205750-98251500
- (a) providing a plurality of offset lithographic printing stations for printing one or more images on a substrate;
  - (b) providing one or more flexographic printing stations prior to at least one of said plurality of offset lithographic printing stations for printing one or more flexographic images on said substrate; and
  - (c) providing a dryer associated with [each] said one or more flexographic printing [station] stations for drying said flexographic images printed on said substrate.

125. (Amended) Method of combining offset lithographic and flexographic printing in a continuous in-line printing process, combining the steps of:

- (a) providing a plurality of offset lithographic printing stations for printing one or more images on a substrate;

(b) providing one or more flexographic printing stations prior to at least one of said plurality of offset lithographic printing stations for printing one or more flexographic images on said substrate;

(c) after said one or more flexographic printing stations, providing one or more succeeding printing offset lithographic printing stations for printing one or more images on the reverse side of the side on which said flexographic images were printed; and

(d) providing a dryer associated with [each] said one or more flexographic printing [station] stations for drying the flexographic images printed on said substrate.

130. (Amended) The method of Claim 124 or 125 wherein the printing of the flexographic image is accomplished by an anilox roller being mounted in a [dedicated] flexographic printing station.

137. (Amended) The method of Claim [135] 124 or 125 wherein the flexographic images are printed with a liquid vehicle slurry containing an encapsulated essence.

141. (Amended) The apparatus of Claim 138 or 139 wherein the [substrate comprises] printing stations are for cut paper sheets.

142. (Amended) The apparatus of Claim 138 or 139 wherein the [substrate is] printing stations are for a continuous web.

144. (Amended) The apparatus of Claim 138 or 139 wherein the printing of the flexographic image is accomplished by an anilox roller being mounted in a [dedicated] flexographic printing station.

151. (Amended) The apparatus of Claim [149] 138 or 139 wherein the flexographic images are printed with a liquid vehicle spin containing an encapsulated essence.

2025-09-09 10:00